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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,591	07/05/2001	Gregory S. Marczak		4021

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EXAMINER	
CULBERT, ROBERTS P	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/899,591	MARCZAK ET AL.	
	Examiner	Art Unit	
	Roberts Culbert	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 13-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 13-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/20/04 has been entered.

Response to Arguments

Applicant's arguments filed 2/20/04 have been fully considered but they are not persuasive.

Applicant has argued that the rejection under 35 U.S.C 112, first paragraph should be withdrawn because *"support for a process that anodizes only one side -- rather than both sides -- is found in Figs. 1 and 2, Pg. 4, Lns. 9-12 and Pg. 5, Ln. 9-Pg. 6, Ln. 5 of the original disclosure. As shown and described there, aluminum 100 includes an anodic layer 110 that has been etched to form protrusions 120, 121; however, only one side of the aluminum 100 is anodized, i.e., the bottom side of the aluminum is not anodized and/or etched."*

The argument is not persuasive because Figs. 1 and 2, Pg. 4, Lns. 9-12 and Pg. 5, Ln. 9-Pg. 6, Ln. 5 of the original disclosure do not teach that the aluminum is anodized only on one side. The disclosure only teaches only a two-sided process. See Specification Page 1, Line 10-13; Page 2, Line 11-12; and Page 6, Line 11-12. The description of figures 1 and 2 does not indicate that the surface is anodized only on one side. The figures are used to show the surface features of the web of aluminum, which by applicants own definition is anodized on both sides.

Applicant has argued that the prior art rejection should be withdrawn because Arrowsmith does not suggest sealing the anodic layer and using sodium hydroxide to etch the anodic layer. However, the argument is moot in view of the new rejections recited below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding Claims 1 and 13, Applicant has described in the specification a process in which a sheet of aluminum that has been anodized on both sides is etched. However, applicant has not described any process that treats a sheet or web of aluminum that has been anodized on one side.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6, 7-10, 13, 14, 15, 20, 21, 23, 24, 25, 26, 27, 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,624,752 to Arrowsmith et al. in view of the publication to Arrowsmith et al. "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*" and in further view of U.S. Patent 4,235,682 to Schneeberger et al. and U.S. Patent 3,671,333 to Mosier.

The Arrowsmith Patent teaches a method for treating aluminum to improve adhesion to a coating comprising a first anodization step (Col. 4, lines 31-35) in sulfuric or chromic acid to form an anodic layer, followed by an etching step (Col. 4, Lines 52-55) using phosphoric, chromic or a mixture of sulfuric and chromic acids to form a roughened surface. The acid etching step is used to dissolve a first anodic layer

portion while roughening a remaining portion of the anodic layer formed in the anodization step. (Col. 4, Lines 59-63) The Arrowsmith Patent teaches etching in a phosphoric acid at a temperature of 60°C (140°F) for a period of 1 minute (Col. 4, Lines 52-58).

The Arrowsmith Patent does not teach application of the process to a continuous web of aluminum, however this step would have been obvious to one of ordinary skill in the art at the time of invention in order to provide commercial aluminum (Col. 4, lines 15-18) with a surface that will strongly adhere to coatings (Col. 1, Lines 15-24).

Regarding Claim 7, since the etching composition and material to be etched are the same in both the prior art references and the claimed invention, it may be assumed that either the bonding layer would be inherently formed about 4-10 nanometers in depth as claimed, or that the claimed feature arises from essential limitations not present in the claim. Furthermore, manipulating the known process variables such as etchant concentration, time and temperature to optimize adhesion strength would be routine experimentation to one of ordinary skill in the art and would be expected to produce a surface with the claimed bonding layer.

Regarding the limitation of selectively etching one side of the anodized aluminum, Official Notice is taken of the fact that applications requiring a bonding surface on only one side of an aluminum substrate are old and well known in the art of producing aluminum for commercial use. Furthermore, Official Notice is taken that techniques for selectively treating one-side of a sheet or web of metal are well known in the art of producing metallic foils. It would therefore have been obvious to apply the method of Arrowsmith to one side of an aluminum sheet or web in order to provide commercial aluminum for such applications. One of ordinary skill in the art would have been motivated to etch only one side of the sheet or web, in order to reduce the amount of etchant needed in the process as well as retaining the sulfuric acid anodized surface that is easily colored and provides a decorative finish as such applications are also well known in the art. See background of instant application.

Regarding the limitation (Claims 6, 15, and 25) of applying the etching composition to one side of the sheet or web using an application technique selected from cascading, misting, spraying, dipping, rolling and brushing, Official Notice is taken of the fact that the claimed techniques are old and well known

in the etching art as alternative methods of applying a liquid etchant to a substrate. It would have been obvious to one of ordinary skill in the art at the time of invention to use the well-known methods in order to etch the sheet or web in the conventional manner.

The Arrowsmith Patent does not teach etching with a composition of sodium hydroxide. However, The Publication to Arrowsmith "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*" teaches that sodium hydroxide may be used instead of phosphoric acid to improve the adhesion properties of an anodized aluminum surface. It would have been obvious to one of ordinary skill in the art at the time of invention to use sodium hydroxide or phosphoric acid in the method of the Arrowsmith Patent since the Arrowsmith Publication teaches that either composition is suitable for modifying an anodized aluminum surface.

Regarding Claim 9, The Arrowsmith publication teaches that a 0.3 molar sodium hydroxide solution may be used. (See Experimental Procedure)

Regarding Claim 10, The references cited do not teach an etch time of 20-60 seconds, however a person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify Arrowsmith in view of Arrowsmith, by using different processing parameters because same were known to be cause effective variables and routine experimentation would have been expected to optimize them. *In re* Boesch, 205 USPQ 215 (CCPA 1980).

Arrowsmith does not teach the steps of coloring and sealing the anodic layer before the etching (roughening) step. However the step of sealing an anodic layer after formation is notoriously old and well known in the art of forming anodized aluminum surfaces. For example, U.S. Patent 3,671,333 to Mosier teaches that it is conventional in the art to seal an anodized aluminum after it is removed from the anodizing bath. (Col. 3, Lines 26-28) and (Col. 5, Lines 74-75) U.S. Patent 4,235,682 to Schneeberger et al. teaches that it is known

Regarding Claims 14 and 26, Schneeberger et al. teaches that it is conventional in the art to color anodized aluminum before sealing. (Col. 1, Lines 12-43) It would have been obvious to one of ordinary skill in the art at the time of invention to color the anodized surface before the step of sealing in order to provide a decorative finish that is entrapped securely within the oxide as taught by Schneeberger.

Claims 3, 19, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,624,752 to Arrowsmith et al. in view of the publication to Arrowsmith et al. "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*", U.S. Patent 4,235,682 to Schneeberger et al. and U.S. Patent 3,671,333 to Mosier, as applied above, and in further view of U.S. Patent 3,898,095 to Berdan et al.

As applied above, Arrowsmith discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting and etching the second side by applying fluids against the second side.

Referring to the sole figure, Berdan teaches a method for etching a continuous web of aluminum (10) having a first side and a second side that includes preventing the etching composition from contacting and etching the second side by applying fluids (22) against the second side. See also (Col. 3, Lines 41-49).

It would have been obvious to one of ordinary skill in the art to prevent the etching composition from contacting and etching the second side by applying fluids against the second side as shown by Berdan in order to prevent unwanted etching of the second side.

Claims 4, 16, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,624,752 to Arrowsmith et al. in view of the publication to Arrowsmith et al. "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*", U.S. Patent 4,235,682 to Schneeberger et al. and U.S. Patent 3,671,333 to Mosier, as applied above, and in further view of U.S. Patent 4,124, 437 to Bond et al.

As applied above, Arrowsmith discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting the second side by masking the second side with a film or sheet.

Bond teaches a method for selectively etching one side of continuous metallic work-piece by covering one side with a removable protective film. See abstract and (Col. 3, Lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the protective film as shown by Bond in order to prevent unwanted etching of the second side from the etching composition contacting and etching the first side.

Claim 5, 17, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,624,752 to Arrowsmith et al. in view of the publication to Arrowsmith et al. "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*", U.S. Patent 4,235,682 to Schneeberger et al. and U.S. Patent 3,671,333 to Mosier, as applied above, and in further view of U.S. Patent 4,013,498 to Frantzen et al.

As applied above, Arrowsmith discloses the method of the invention substantially as claimed, but does not teach preventing the etching composition from contacting and etching the second side by covering the second side with a protective shield.

Frantzen teaches covering a sheet of metallic material with a removable shield on one side to prevent contact with an etching composition. See Abstract.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the shield as shown by Frantzen in order to prevent unwanted etching of the second side from the etching composition contacting and etching the first side.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,624,752 to Arrowsmith et al. in view of the publication to Arrowsmith et al. "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*", U.S. Patent 4,235,682 to Schneeberger et al. and U.S. Patent 3,671,333 to Mosier, as applied above, and in further view of U.S. Patent 5,945,351 to Mathuni.

Referring to figure 1, Mathuni teaches a method for selectively etching one surface (14) of a work-piece while preventing the etching composition (15) from contacting the other surfaces (12, and 13) by blowing a protective gas (16) against the other surfaces (Col. 4, Lines 1-2).

It would have been obvious to one of ordinary skill in the art to prevent the etching composition from contacting selected surfaces by applying a protective gas as shown in the invention of Mathuni against the surfaces in order to prevent unwanted etching of the surfaces from the etching composition contacting the at least one surface.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,624,752 to Arrowsmith et al. in view of the publication to Arrowsmith et al. "*The enhancement of adhesive joint strength by extending the surface of anodized aluminum*", U.S. Patent 4,235,682 to Schneeberger et al. and U.S. Patent 3,671,333 to Mosier, as applied above, and in further view of U.S. Patent 3,898,095 to Berdan and U.S. Patent 4,124,437 to Bond.

As applied above, Arrowsmith discloses the method of the invention substantially as claimed, but does not teach covering a decorative side with a film and dipping the aluminum article in an etching composition.

Bond teaches a method for selectively etching one side of continuous metallic work-piece by covering one side with a removable protective film. See abstract and (Col. 3, Lines 21-29).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the protective film as shown by Bond in order to prevent unwanted etching of the second side from the etching composition contacting the first side.

Bond does not teach dipping the aluminum article in a etching composition. Bond shows application of the etching composition by spraying.

Referring to the sole figure, Berdan does teach that a continuous web of aluminum may be uniformly etched by dipping in an etching composition.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the dipping method with the protective film of Bond in order to insure complete coverage of the etching composition in the well-known manner.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert R. Culbert

P. Hassanzadeh
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